

BOROUGH OF FINSBURY.

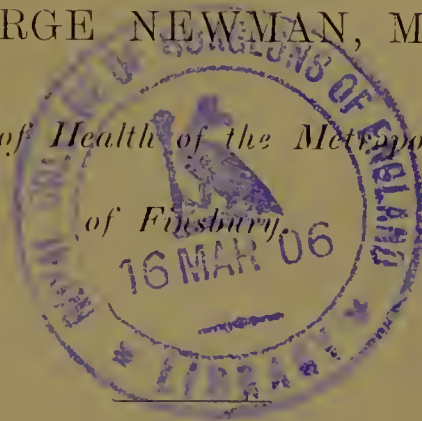
BAKEHOUSES IN FINSBURY.

A Special Report under the Factory and Workshop Act, 1901, Sections 97-102.

BY

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*Medical Officer of Health of the Metropolitan Borough
of Finsbury*



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*To the Public Health Committee of the
Metropolitan Borough of Finsbury.*

GENTLEMEN,

I beg to submit herewith a Special Report on the Bakehouses at present existent in the Borough of Finsbury. It is drawn up in accordance with the instructions of your Committee in view of the powers conferred upon the Local Authority by the Factory and Workshop Act, 1901, Sections 97-102. By that Act it is required that no underground Bakehouse shall be used after January 1st, 1904, unless certified by the Borough Council as suitable for that purpose. It shall not be considered suitable unless the Council is satisfied that it is suitable as regards construction, light, ventilation, and in all other respects. There can be no doubt that the object of this legislation is, if not the closure of all underground Bakehouses, at least the closure after January 1st, 1904, of all unsuitable underground Bakehouses, and such alteration of remaining underground Bakehouses as will bring them into compliance with the requirements of the Act. Out of 69 Bakehouses in Finsbury 46 are underground. It is my duty to state that there are not a few of them which fail to meet the requirements of the Act, or indeed any ordinary common-sense requirements of a Bakehouse. The facts contained in the Report speak for themselves, and it seems to me inevitable that certain underground Bakehouses must now be closed. In other cases I am of opinion that the premises are capable of such alteration and improvement as will justify the Council in certifying them as suitable. Taking into consideration all the circumstances of the case I consider that in fairness to the trade and for the proper administration of the Act, the best course will be for the Committee to issue a copy of this Report to each person concerned, with the application form to be filled up (*see p. 54*) in the event of the person desiring to use his underground Bakehouse after 1904, and that thereafter, on the receipt of applications for certificates, each underground Bakehouse be carefully considered, without prejudice, *on its own merits*.

Having said this it is right that I should remind the Committee that it falls to the duty of the Borough Council in the interests of the public, and in the long run of the trade itself, to insist upon *strict compliance with the Act* in respect to every Bakehouse for which a certificate of suitability is claimed.

The following Report contains, of necessity, a good deal of criticism, but I do not assert that the bakers' trade is open to more unfavourable criticism than other similar trades, and I believe that many of the bakers in the Borough have been, and are, fully desirous of conducting their business in a wholly satisfactory manner, and in compliance with the requirements of the law. I have to thank many members of the trade for their courtesy and assistance.

It will be apparent to the Committee that a considerable amount of exceptional work has been involved in the production of this Report, and I desire to express my thanks to Mr. Kear Colwell, the Public Analyst of the Borough, for his analyses of air, and to Chief Inspector Green for his invaluable assistance in every part of the enquiry.

I have the honour to be,

Gentlemen,

Your obedient Servant,

George Newman, M.D. DPH.

Medical Officer of Health.

PUBLIC HEALTH DEPARTMENT,

TOWN HALL, ROSEBERY AVENUE, E.C.,

October 20th, 1902.



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CHAPTER I.

BAKEHOUSE LEGISLATION.

By the **Bakehouse Regulation Act, 1863**, Bakehouses were first brought under some measure of sanitary control of Local Authorities. This Act contained sections dealing with four chief points—namely (*a*) that no person under 18 years of age should be allowed to work by night in a Bakehouse; (*b*) that the walls, ceilings, passages and staircase should be painted once every seven years, and cleaned once every six months, or white-washed every six months; (*c*) cleanliness, effectual ventilation, and freedom from effluvia arising from any drain, privy or other nuisance; and (*d*) that no place on the same level as a Bakehouse may be used as a sleeping place unless effectually separated.*

Such were the general principles of the Bakehouse legislation forty years ago.

In 1878 a **Factory and Workshop Act** came into force, which incorporated the above principles, but took the control of the Bakehouses away from the Sanitary Authorities and vested it in the Home Office, handing over the inspection to the factory inspectors.† This was found in practice to work much less effectually than the method of local control authorised in the Regulation Act of 1863. Accordingly in 1883 the Government passed another Act,‡ which transferred the enforcement of the law respecting retail bakehouses to the Local Authorities of the district in which the Bakehouse is situate. This Act further

* *Bakehouse Regulation Act, 1863, Sections 3—6.*

† *Factory & Workshop Act, 1878, Sections 3, 33, 34 and 35.*

‡ *Factory & Workshop Act, 1883, Sections 15—18.*

laid down certain conditions respecting new Bakehouses (which were not so occupied before June 1, 1883). These conditions included general sanitary fitness, and clauses relating to water-closets, cisterns and drains opening in the Bakehouse. The substance of these clauses appeared in all subsequent legislation. The Factory & Workshop Act, 1891, and the Public Health (London) Act of the same year, increased the powers of entry and enforcement of such measures as would secure improved sanitary conditions in Bakehouses, and in 1895 another Factory & Workshop Act was passed which emphasized the sanitary provisions of the Act of 1883, and also incorporated the following clause respecting Underground Bakehouses :—

Section 27 (3) “A place underground shall not be used as a “bakehouse unless it is so used at the commencement of this “Act [*i.e.*, January 1, 1896], and if any place is so used in “contravention of this Act it shall be deemed to be a workshop “not kept in conformity with the principal Act.”

Under this Section it was the intention of the Legislature to enable Sanitary Authorities from time to time to close insanitary Underground Bakehouses on vacation of premises. Since 1896 there has been a considerable number of closures of such Bakehouses in this district of London.

We now come to the present legislation as represented in the Factory & Workshop Act, 1901.

Before referring in detail to the “new” regulations it may be pointed out that the legislation now in force in the Act of 1901 is not, as some persons have suggested, a new departure. It is the ultimate and logical conclusion of the legislation, respecting Bakehouses, of the last 40 years. The main sanitary provisions have in fact been in force, in a greater or lesser degree under the jurisdiction of the Home Office or the Local Authority, since 1863. Even the restrictions now placed upon Underground Bakehouses were foreshadowed in 1895.

CHAPTER II.

THE FACTORY & WORKSHOP ACT, 1901.

Preamble.

Before printing in detail the actual clauses of the Act dealing with Bakehouses, it may be well to introduce the subject by a brief preamble. Bakehouses are either factories or workshops within the meaning of the Act according as mechanical power is or is not used in aid of the processes carried on. They are, therefore, subject to the general provisions of the Act; and the same powers will be exercised by the Finsbury Borough Council in regard to Bakehouses that are exercised by them in regard to factories and workshops.

A general power is also given to the Borough Council in the case of any Bakehouse which is in such a state as to be on sanitary grounds unfit for use or occupation as a Bakehouse to bring the case before a Court of summary jurisdiction; and the Court may thereupon impose a fine of £2 (if a first offence) or £5 (if a subsequent offence), and, either in addition to or in lieu of imposing a fine, order means to be adopted for the purpose of removing the ground of complaint.

In addition to the general regulations of the Act, special sanitary regulations for Bakehouses are contained in the Act. These regulations require that—

(1) A Bakehouse must not contain or communicate directly with a water closet, earth closet, privy or ashpit; a cistern supplying water to a Bakehouse must be separate from any cistern supplying water to a water closet; and a sewage pipe or drain must not have any opening in the bakehouse. The penalty for any contravention is a fine not exceeding £2 both on the

occupier and on the person letting or suffering the Bakehouse to be occupied, and a further fine not exceeding 5s. for each day occupation continues after conviction.

(2) All inside walls and ceilings of rooms and all passages and staircases must be limewashed every six months, or coated with three coats of paint or varnish every seven years and washed with hot water and soap every six months ; if not, the Bakehouse will be deemed not to be kept in conformity with the Act.

(3) Places on the same level with a Bakehouse and forming part of the same building must not be used as sleeping places unless effectually separated from the Bakehouse by a partition from floor to ceiling and provided with an external glazed window 9 square feet, of which $4\frac{1}{2}$ feet must be made to open :— for a first offence a penalty of £1 and for a second or subsequent offence a penalty of £5 may be imposed both on the person occupying and on the person letting or knowingly suffering the place to be occupied.

Further, new duties of great importance are placed by sec. 101 of the Act on District Councils in regard to Underground Bakehouses :—

(i) The Act provides generally that no Underground Bakehouse shall be used as such unless it was so used on the 17th August last : this provision it will be the duty of the Council to enforce in the case of retail Bakehouses.

(ii) Moreover, after 1st January, 1904—that is, after a period of two years from the coming into force of the Act—it will not be lawful to use any Underground Bakehouse (whenever established) unless the Council are satisfied that it is suitable for the purpose in regard to construction, light, ventilation, and in all other respects, and have given it a certificate of suitability. This provision will apply to all Bakehouses, whether wholesale or retail.

Every Bakehouse will be deemed an under-ground Bakehouse if any room used for baking, or for any process incidental thereto, is so situate that the surface of the floor is more than 3 feet below the surface of the footway of the adjoining street, or of the ground adjoining or nearest to the room

An Underground Bakehouse used in contravention of these provisions will be deemed to be a workshop not kept in conformity with the Act.

The exact Clauses of the Act are as follows :—

97—(1) “ It shall not be lawful to let or suffer to be occupied or to occupy any room or place as a Bakehouse unless the following regulations are complied with :— Sanitary Regulations for Bakehouses.

(a) “ A water closet, earth closet, privy or ashpit must not be within or communicate directly with the Bakehouse ;

(b) “ Every cistern for supplying water to the Bakehouse must be separate and distinct from any cistern for supplying water to a water closet ;

(c) “ A drain or pipe for carrying off faecal or sewage matter must not have an opening within the Bakehouse.”

(2) “ If any person lets or suffers to be occupied or occupies any room or place as a Bakehouse in contravention of this Section he shall be liable to a fine not exceeding forty shillings, and to a further fine not exceeding five shillings for every day during which any room or place is so occupied after a conviction under this Section.”

98—(1) “ Where a Court of summary jurisdiction is satisfied on the prosecution of an inspector or a District Council that any room or place used as a Bakehouse is in such a state as to be on sanitary grounds unfit for use or occupation as a Bakehouse, the occupier of the Bakehouse shall be liable to a fine not exceeding, for the first offence, forty shillings, and for every subsequent offence five pounds.” Penalty for Bakehouse being unfit on Sanitary grounds.

(2) “The Court of summary jurisdiction, in addition to or instead of inflicting a fine, may order means to be adopted by the occupier within the time named in the order for the purpose of removing the ground of complaint. The Court may on application enlarge the time so named, but if after the expiration of the time as originally named or enlarged by subsequent order the order is not complied with, the occupier shall be liable to a fine not exceeding one pound for every day that the non-compliance continues.”

Limewashing,
Painting and
Washing of
Bakehouse.

99—(1) “All the inside walls of the rooms of a Bakehouse, and all the ceiling or tops of those rooms (whether those walls, ceilings or tops are plastered or not), and all the passages and staircases of a Bakehouse must either be painted with oil or varnished, or be limewashed, or be partly painted or varnished and partly limewashed ; and

(a) “Where the Bakehouse is painted with oil or varnished there must be three coats of paint or varnish, and the paint or varnish must be renewed once at least in every seven years, and must be washed with hot water and soap once at least in every six months ; and

(b) “Where the Bakehouse is limewashed, the limewashing must be renewed once at least in every six months.”

(2) “A Bakehouse in which there is a contravention of this Section shall be deemed not to be kept in conformity with this Act.”

Provisions as
to sleeping
places near
Bakehouses.

100—(1) “A place on the same level with a Bakehouse and forming part of the same building may not be used as a sleeping place unless it is constructed as follows—that is to say :—

(a) “Is effectually separate from the Bakehouse by a partition extending from the floor to the ceiling ; and

(b) “Has an external glazed window of at least nine superficial feet in area, of which at the least four and a-half superficial feet are made to open for ventilation.”

(2) “If any person lets or occupies or continues to let or

knowingly suffers to be occupied any place contrary to this Section he shall be liable to a fine not exceeding, for the first offence, twenty shillings, and for any subsequent offence five pounds."

101.—(1) "An underground bakehouse shall not be used as a bakehouse unless it was so used at the passing of this Act."

Prohibition
of
Underground
Bakehouses.

(2) "Subject to the foregoing provision, after the 1st day of January, 1904, an underground bakehouse shall not be used unless certified by the district council to be suitable for that purpose."

(3) "For the purpose of this section an underground bakehouse shall mean a bakehouse, any baking room of which is so situate that the surface of the floor is more than three feet below the surface of the footway of the adjoining street, or of the ground adjoining or nearest to the room. The expression "baking room" means any room used for baking, or for any process incidental thereto."

(4) "An underground bakehouse shall not be certified as suitable unless the district council is satisfied that it is suitable as regards construction, light, ventilation, and in all other respects."

(5) "This section shall have effect as if it were included among the provisions relating to bakehouses which are referred to in section 26 of the Public Health (London) Act, 1891."

(6) "If any place is used in contravention of this section it shall be deemed to be a workshop not kept in conformity with this Act."

(7) "In the event of the refusal of a certificate by the district council, the occupier of the bakehouse may, within twenty-one days from the refusal, by complaint apply to a court of summary jurisdiction, and if it appears to the satisfaction of the court that the bakehouse is suitable for use as regards construction, light, ventilation, and in all other respects, the court shall thereupon grant a certificate of suitability of the bakehouse, which shall have effect as if granted by the district council."

(8) “Where any place has been let as a bakehouse, and the certificate required by this section cannot be obtained unless structural alteration are made, and the occupier alleges that the whole or part of the expenses of the alterations ought to be borne by the owner, he may by complaint apply to a court of summary jurisdiction, and that court may make such order concerning the expenses or their apportionment as appears to the court to be just and equitable under the circumstances of the case, regard being had to the terms of any contract between the parties, or in the alternative the court may, at the request of the occupier, determine the lease.”

Enforcement
of law as to
retail Bake-
houses by
Sanitary
Authorities.

102.—“As regards every retail bakehouse, the provisions of this part of this Act shall be enforced by the district council of the district in which the retail bakehouse is situate, and not by an inspector; and for the purpose of this section the Medical Officer of Health of the district council shall have and may exercise all the powers of entering, inspection, taking legal proceedings, and otherwise of an inspector.”

“In this section the expression “retail bakehouse” means any bakehouse or place, not a factory, the bread, biscuits, or confectionery baked in which are sold, not wholesale, but by retail, in some shop or place occupied with the bakehouse.”

CHAPTER III.

WHAT DOES THE ACT MEAN IN PRACTICE ?

A SUMMARY OF GENERAL SANITATION OF BAKEHOUSES.

Having now considered the past and present legislation, it is desirable, in order to make the subject clear to the owners of Bakehouses, to summarize in simple form the practical effect of all the legislation under all and any Acts dealing with sanitation in Bakehouses. "What does the Act mean in practice?" is a question which has been addressed to us, and this section of the report has been drawn up with a view of answering that question, and placing in simple and clear terms the practical points that require attention, and which must form the basis upon which "suitability" or "unsuitability" is decided. Not infrequently a baker defends a breach of the law by urging that he did not know the law meant so and so, and we desire to place in the hands of every owner of a Bakehouse in Finsbury an explicit statement as to what the law actually does mean. For convenience we have placed, first, the requirements common to all Bakehouses, whether above ground or underground; and secondly, the requirements in respect to underground Bakehouses only.

A.—Regulations applying to all Bakehouses.

1. **General.**—Every room or place used as a Bakehouse must at all times be in such a state as to be on sanitary grounds fit for use and occupation as a Bakehouse.

2. **Water Closets.**—No water closet, earth closet, privy or ashpit must be within or communicate directly with the Bakehouse, (Factory Act, 1901, Section 97.) Every Bakehouse must have a water closet which must possess proper means of ventilation and lighting, and must in all respects comply with the Bye-laws for water closets.

3. Cisterns.—Every cistern for supplying water to the Bakehouse must be separate and distinct from any cistern supplying water to a water closet (Factory Act, 1901, Section 97.) Every cistern supplying water to a Bakehouse must be made of metal or of slate, and must be effectually covered and periodically cleansed.

4. Drains.—No drain or pipe for carrying off faecal or sewage matter is to have an opening within the Bakehouse (Factory Act, 1901, Section 97.) The joints of any drain passing beneath the floor of a Bakehouse should be gas and water-tight. Any covers necessary to inspection chambers to the drains should be of metal, and be double covers with double sealed joints.

Any gully for carrying off waste water must be discharged over, or on to, a properly trapped inlet situated *outside* the Bakehouse.

N.B.—No certificate shall be granted for any underground Bakehouse which is liable to be flooded with sewage owing to the public sewer becoming surcharged.

5. Walls, Ceiling, Passages and Staircases of the Bakehouse must either be painted with oil or varnished, or be limewashed or be partly painted or varnished and partly limewashed.

(a) Where painted with oil or varnished there must be 3 coats of paint or varnish which must be renewed once in every 7 years, and must be washed with hot water and soap every 6 months. (Factory Act, 1901, Section 99.)

(b) Where limewashed the limewashing must be renewed once at least in every 6 months. (Factory Act, 1901, Section 99.)

The walls are to be smooth and impervious throughout, so that the Bakehouse may be free from dampness.

6. Sleeping Place. No room or place on the same level of the Bakehouse and forming part of the same building may be used as a sleeping place unless effectually separated from the Bakehouse

by a partition extending from the floor to the ceiling, and having an external glazed window of at least 9 superficial feet in area, of which $4\frac{1}{2}$ superficial feet are made to open for ventilation. (Factory Act, 1901, Section 100), and if such sleeping place be separately occupied the requirements as to underground rooms, so occupied, laid down in Section 96 of the Public Health (London) Act, 1891, must be complied with

7. Employment of Male Young Persons.—Male young persons between 16 and 18 years of age may not be employed in a Bakehouse, in which the process of baking bread is carried on, except between the hours of 5 a.m. and 9 p.m., with seven hours for absence and meals; provided that no such person is employed both before and after the ordinary period of employment* on the same day, nor after the ordinary period on one day and before the ordinary period on the next day. (Factory Act, 1901, Section 38.)

B.—Regulations applying to Underground Bakehouses.

8. No underground Bakehouse may be used as such unless it was being used as a Bakehouse on and before August 17th, 1901, and no underground Bakehouse, which was in use on and after August 17th, 1901, may be used as such after January 1st, 1904, unless certified by the Finsbury Borough Council to be suitable.

9. An underground Bakehouse shall not be certified as suitable unless the Finsbury Borough Council is satisfied that it is suitable as regards (i) construction; (ii) light; (iii) ventilation and (iv) in all other respects. (Factory Act, 1901, Section 101, Subsection 4).

* By Section 26, Factory & Workshop Act, ordinary period of employment is defined as follows:—"Work to begin at 6 o'clock in the morning and end at 6 o'clock in the evening, or begin at 7 o'clock in the morning and end at 7 o'clock in the evening, or begin at 8 o'clock in the morning and end at 8 o'clock in the evening, except on Saturday, when work must cease at either 2 o'clock, 3 o'clock, or 4 o'clock respectively. On every day except Saturday there must be at least $1\frac{1}{2}$ hours allowed for meals.

(i) **Construction :—**

The underground Bakehouse must have a capacity of not less than 1,000 cubic feet.

(a) **Height.** The underground Bakehouse should be in every part thereof 8 ft. high, measured from the floor to the ceiling, and should have at least 3 ft. of its height above the surface of the footway of the adjoining street, or of the ground adjoining or nearest to the Bakehouse, unless provided with a sufficient area or areas directly communicating with the external air into which a window or windows of such underground Bakehouse open.

(b) **Ceilings.** The ceilings are to be properly ceiled or, if made of brick, to be made smooth and impervious and to be painted, or varnished, or limewashed similarly to the walls.

(c) **Walls.** See above under Regulations applying to all Bakehouses.

(d) **Floors.** The floors are to be made of at least 6 inches of concrete rendered smooth in cement or with other jointless, hard, smooth and impervious paving. The floor of the Bakehouse should be laid to proper falls and be drained by means of a suitable channel to a gully over which, if practicable, a draw off tap should be fixed, the gully being properly dished and placed outside the Bakehouse.

(ii) **Light.** An underground Bakehouse should be provided with one or more windows opening directly into the external air, or into an area or areas, so as to be properly lighted by the admission of daylight—such windows should have a total area, clear of the sash frames, equal, at least, to $\frac{1}{10}$ th of the floor space of the Bakehouse, and be so constructed that $\frac{1}{2}$ at least of each window can be opened. The opening in each case to extend to the top of the window. The lighting of a Bakehouse may also be obtained in part by areas opening on the footway, glazed with reflecting prisms, the walls of the areas being built in white, glazed bricks. No Bakehouse will be considered suitable in which it is necessary at all times to illuminate artificially.

(iii) **Ventilation.** An underground Bakehouse should be properly and effectually ventilated by permanent inlets and outlets (other than the windows or staircase) of sufficient size and suitable character, such openings not being under the control of the persons employed. Through ventilation will be insisted upon, and this is not to be obtained from the footway surface or the stall board of the shop front, unless at a height of at least 12 inches above the footway surface; and not even then when ventilation can be had in any other way.

The temperature of an underground Bakehouse should be constant and equable (say 60–65° Fahrenheit.) The standard of ventilation should be such that the CO₂ does not exceed 10 per 10,000 volumes while the work is going on.

iv. All other respects:—

(a) **Proper means of access** to the Bakehouse must be provided.

(b) **Flour, Storage, etc.** Provision is to be made for the proper storage of flour, potatoes, salt, and all other constituents or ingredients used in the Bakehouse, elsewhere than in the Underground Bakehouse itself. Such store places must be as strictly and properly kept as a Bakehouse.

(c) **Troughs.** All Dough Troughs and Benches must be provided with casters or wheels so as to be readily removed for cleaning purposes. Such troughs, benches and utensils of every kind are to be kept at all times scrupulously clean.

(d) **Refuse.** No refuse of any kind is to be stored within the Underground Bakehouse itself, and all sweepings, ashes and refuse matters of every kind are to be removed immediately from such Underground Bakehouse, and placed in a proper and sufficient covered receptacle outside the Bakehouse.

(e) **No animals** are to be kept in the Bakehouse on any pretext whatever.

(*f*) **The furnace** in connection with the oven is to be provided with an efficient outlet or flue to carry off any fumes generated in the process of baking. An outlet for heat or steam is to be provided immediately in front of the oven door. The outer doors of the furnaces and the oven door are to be close fitting.

Where gas is used in the process of baking, efficient means of ventilation must be provided for carrying off any fumes generated.

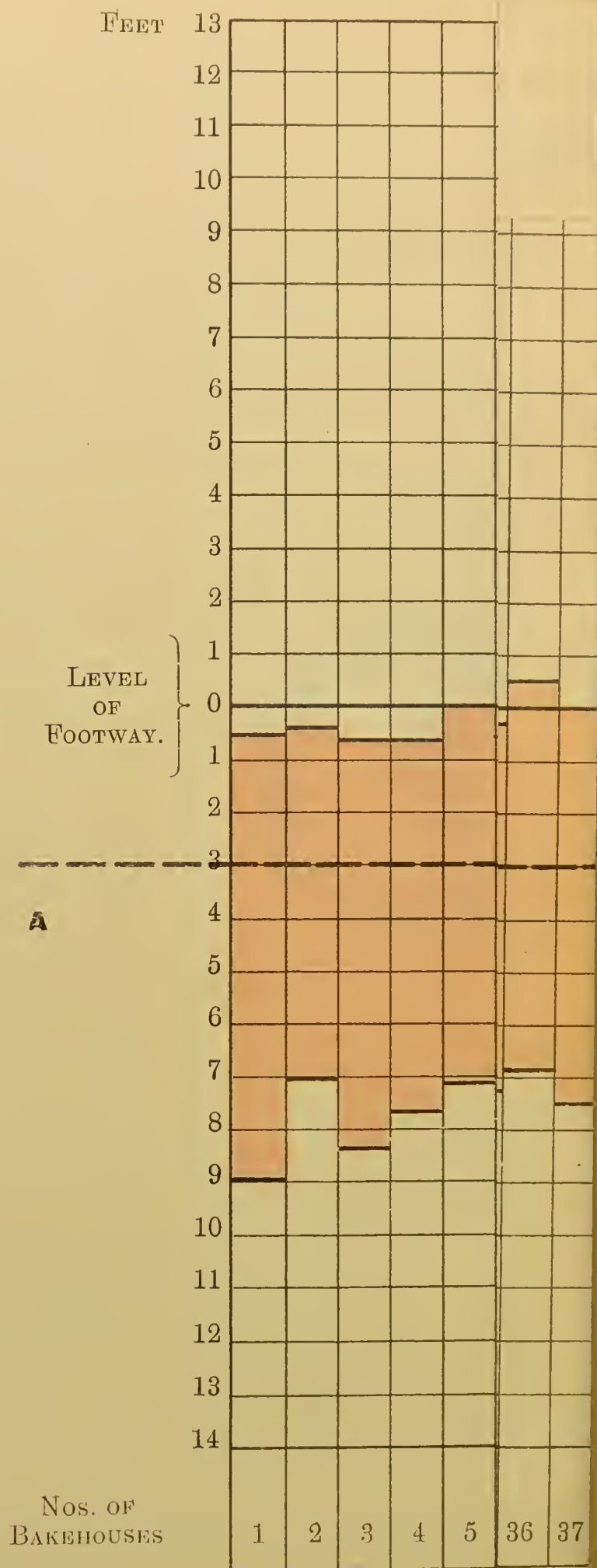
(*g*) **No overcrowding** of workers is to be allowed at any time within the Bakehouse.

(*h*) **The Bakehouse** is never to be used for any other purpose except that for which it is intended. No laundry or other work is to be carried on in the Bakehouse.

(*i*) **The Bakehouse** must be kept at all times periodically cleansed, and in a cleanly state, and free from offensive effluvia arising from drains, water closets, urinals, or any other nuisance whatever.

NOTE.—As stated in the prefatory note to this Report, it is deemed desirable and most equitable to all parties that each underground Bakehouse should be judged, without prejudice, on its own merits. Most of the above conditions are absolutely binding and will be enforced with great strictness. Some are of a suggestive nature, and it is possible that under exceptional circumstances the requirements may be met in other ways.





CHAPTER IV.
THE UNDERGROUND BAKEHOUSES
IN FINSBURY.

The following is a list of the underground bakehouses at present existent in the Borough :—

Amwell Street, 21, 53.
Aylesbury Street, 14.
Barnsbury Road, 6.
Bath street, 42, 66.
Bowling Green Lane, 11.
Central Street, 29, 124.
Chapel Street, 2.
Corporation Row, 36.
Compton street, 1, 68.
Exmouth Street, 14, 17.
Farringdon Road, 88.
Finsbury Pavement, 109.
Goswell Road, 5, 235, 236, 272, 281.
Henry Street, 45.
Ironmonger Row, 58.
King's Cross Road, 92.
Lloyd's Row, 35.
Macclesfield Terrace, 2.
Margaret Street, 16.
Myddelton Street, 4.
Northampton Street, 32.
Penton Street, 30.
Red Lion Street, 40.
Rosoman Street, 51.
St. John Street, 56.
St. John Street Road, 1, 61, 131, 190.
Southampton Street, 42.

Tysoe Street, 2.

Whitecross Street, 61, 106, 148, 169.

White Lion Street, 72.

Wilmington Street, 1.

The main particulars respecting these 46 bakehouses are as follows. (The numbers purposely do not follow the alphabetical order of the addresses) :—

- No. 1.** Rental £63 ; lease 11 years to run ; three men, night-work ; cubic space, $23\cdot0 \times 16\cdot0 \times 7\cdot6$ —2760 feet ; walls, brick, plastered, whitewashed ; ceiling, wood, painted ; floor, flagged ; troughs, 2 (one fixed and one on casters) ; ovens, 2 (8 and 10 bushel) ; flour kept in Bakehouse ; ventilation, fair, three sky lights and one up-cast ; light bad, gas all through winter ; clean ; drain inlets, none ; w.c. in small covered-in yard, with external ventilation ; water supply from main ; trade, 22 sacks per week ; bread made by hand ; No sleeping place on level of, or communicating with, Bakehouse.
- No. 2.** Rental £65 ; lease 4 years to run ; repairing lease ; night-work ; cubic space, $15\cdot0 \times 14\cdot6 \times 6\cdot8$ —1451 feet ; walls, brick, plastered, whitewashed ; ceilings, plastered, whitewashed ; floor, stone flagged ; wood staircase approached from passage ; troughs, 2 (fixed) ; ovens, 2 (5 and 11 bushel) ; ventilation, fair (one opening in stallboard, one at side, and one grating) ; light, indifferent ; clean ; drain inlets, none ; w.c. in yard ; dust put into sack in flour cellar ; coal kept in small vault ; water supply direct from main ; trade 18 sacks per week.
- No. 3.** Rental £60 ; been there 4 years ; 1 man, night and day work ; cubic space, $16\cdot0 \times 10\cdot9 \times 7\cdot6$ —1,330 feet ; walls, brick, plastered, whitewashed ; ceiling, match-lined, whitewashed ; floor, stone flags, good ; no windows, pavement light and doors in stallboard ; staircase, wooden, from passage ; limewhiting done every three months ; troughs, two (fixed) wooden ; oven, one (10 bushel) ; flour, salt and potatoes kept in a separate place ; ventilation and light fair, gas necessary in winter ; Bakehouse clean ; drain inlets, none, but gully in adjoining room ; w.c. in passage top of Bakehouse stairs ; ashpit in yard ; coal in small cellar at back ; water supply from cistern, which is in a bad position ; Bakehouse premises extend under adjoining property ; trade, 12 sacks per week.
- No. 4.** Rent £30 ; been there 20 years ; cubic capacity, $15\cdot6 \times 13\cdot6 \times 7\cdot3$ —1,517 feet ; 4 men, night and day work ; walls, brick, plastered, whitewashed ; ceiling, wood, whitened ; floor, large stone flags ; windows in stallboard ; staircase, wooden from passage ; clean, whitewashing

done 3 times yearly ; troughs, three, fixed ; oven, one (10 bushel) ; flour kept in back addition, potatoes in shed ; ventilation fair ; light fair ; drain inlets, none : w.c. in yard ; ashpit, metal, in yard ; coal in cellar apart from Bakehouse ; water cistern, easily accessible and clean ; trade, 22 sacks weekly, also cook's dinners for people in neighbourhood and supplies general and other shops.

No. 5. Rental £50 ; been there 11 months ; cubic capacity, $16\cdot6 \times 11\cdot6 \times 7\cdot0$ —1,328 feet ; two men, night and day work ; walls, brick, plastered and whitened ; no ceiling, joists not plastered ; flooring, large stone flags ; windows, 1 in stallboard, 1 half-glazed door ; staircase, wooden, from passage ; troughs, 2 fixed ; oven, 1 (12 bushel) ; flour kept in adjoining room, also salt, potatoes and margarine ; ventilation, indifferent ; light, indifferent ; cleaning, not well done ; drain inlets, none ; w.c., in yard ; ashpit, metal, in yard ; coal, in cellar : cistern, slate, communicating with water waste preventors in each of 2 water-closets ; trade, about 12 sacks per week ; could probably build over yard.

No. 6. Rental, 22/- weekly ; cubic capacity, $17\cdot0 \times 13\cdot0 \times 7\cdot9$ —1,713 feet ; three men, day work ; walls, brick, lime whited ; ceiling, plastered, whitened ; floor, cement ; windows, none ; skylights, none ; approaches, ladder to shop, 1 staircase ; dirty ; trough, 1 wood, fixed ; oven, one (5 bushel) ; flour, &c., stored in adjoining room ; ventilation, bad ; lighting bad, gas always burning ; drain inlets, manhole in Bakehouse ; ashpit, in yard ; coal, in cellar by oven ; water supply, from cistern ; trade, 20 to 30 sacks per week.

No. 7. Rental, £90 ; two men, early morning work ; cubic space, $18\cdot6 \times 14\cdot6 \times 7\cdot6$ —1,943 feet ; walls, brick, whitewashed ; floor, cement, defective ; ceiling, plastered and whitened : windows, 2 small in stallboard ; approached, by ladder from shop and stone staircase through flour room from passage ; troughs, 2 fixed, wooden ; ovens, 2 (8 and 10 bushel) ; flour is stored partly in Bakehouse and partly in a storeroom ; ventilation and light, through 2 small openings in stallboard, inefficient ; drain inlets, none ; water-closets, 1 in basement, entered from flour storeroom ; ashpit, metal, on stairs ; coal in cellar by w.c. ; water supply from cistern ; trade, 14 or 15 sacks weekly.

No. 8. Rental £70 ; been in occupation 7 years, three men, early morning and day work ; cubic space, $18\cdot6 \times 11\cdot6 \times 8\cdot0$ —1,702 feet, less for circular roof $11\cdot6 \times 4\cdot0 \times 18\cdot6$ —465 feet, nett 1,237 feet ; walls, brick, plastered, whitewashed ; ceiling, plastered and whitened ; floor, cement compo. ; window, one over oven looking into yard ; troughs, two wood, fixed ; ovens, two ($6\frac{1}{2}$ and $9\frac{1}{2}$ bushel) ; ventilation, fair, but no through current ;

light, good ; drain inlets, none ; water-closets in yard ; ashpit in yard ; water supply from main ; trade, 25 sacks per week, serves other shops and private customers.

No. 9. Rental, £62 ; been here 20 years ; 3 men ; night and early morning work ; cubic space, $15\cdot0 \times 13\cdot6 \times 7\cdot9 = 1,568$ feet ; walls, brick, plastered in parts, whitened ; ceiling, plastered and whitened ; floor, cement ; windows, 1 in stallboard ; skylights, none ; staircase leading from shop ; limewhiting done 3 times yearly ; troughs, 2 wood, fixed ; ovens, 1 (10 bushel) ; flour stored in room adjoining Bakehouse ; salt kept in Bakehouse ; ventilation, indifferent ; light, bad, gas has to be used at all times ; cleanliness, fair ; drain inlets, none in Bakehouse ; water closet, 1 in yard ; ash-pit in yard ; coal kept in cellar in back area ; water supply from main ; trade, 10-12 sacks weekly.

No. 10. Rental £50 ; been in occupation 6 years ; 2 men, night work ; cubic capacity, $20 \times 11\cdot3 \times 7\cdot9 = 1744$ feet ; walls, brick, plastered and whitened ; ceiling, none, joists of ground floor shew in Bakehouse ; floor, stone flags ; windows, two, small, one sliding, approached from shop by ladder ; troughs, two wooden, fixed ; ovens, two ; flour kept in room over Bakehouse, also potatoes and salt ; fairly clean ; drain inlets, none ; water-closet in yard ; ashpit, metal, in yard ; coal in cellar leading from Bakehouse ; water supply from cistern placed in flour room ; trade, about 16 or 17 sacks weekly.

No. 11. Rental £70 ; been in occupation 4 years ; 4 men, night work ; cubic space, $25\cdot0 \times 15\cdot0 \times 6\cdot8 = 2500$ feet ; walls, brick, plastered and whitened ; ceiling not plastered and whitened ; floor, large stone flags ; windows in stallboard, skylights, nil, approached by ladder from street ; troughs, three wood, movable ; ovens, two (4 and 12 bushel) ; flour stored in room of next door house ; ventilation, fair ; light, fair ; cleanliness, fair ; drain inlets, none ; gully in area ; water-closet in area, indifferent ; ashpit, metal outside ; water supply from main ; trade, about 40 sacks weekly.

No. 12. Rental £52 10s. ; been in occupation 16 years, 10 years unexpired ; 6 men, 3 at night and 3 in daytime ; cubic space, $25\cdot6 \times 15\cdot2 \times 7\cdot6 = 2899$ feet, and $18\cdot6 \times 11\cdot0 \times 7\cdot9$ and $6\cdot0 \times 5\cdot0 \times 7\cdot9$ and $5\cdot0 \times 4\cdot6 \times 7\cdot5 = 1978$ feet ; walls, brick, plastered and whitewashed ; ceiling not plastered, joists showing whitened ; floor, large square flags ; windows, none, three openings in stallboard and 1 pavement light ; skylights, one ; staircases, two ladders ; limewhited three times yearly ; troughs, three movable wood ; ovens ; three (4, 6 and 6 bushel) ; flour stored in room on street level ; potatoes

and salt in small covered area ; sugar in sacks in Bakehouse ; ventilation, fair (an electric fan is used) ; light, fair (electric artificial light) ; drain inlets, none in Bakehouse ; water-closet, between two Bakehouses has a lobby and is ventilated ; ashpits, three metal ; coal kept in cellar : water supply (H. & C.) from main and cistern ; galvanized iron cistern is placed on roof of store room ; trade, 32 sacks weekly, serves two small shops and private trade.

No. 13. Rental £50 ; been in occupation 12 months ; two men, night and day work ; cubic space, $12\cdot9 \times 10\cdot0 \times 7\cdot0 = 893$ feet ; Bakehouse floor 6·8 below level of street ; walls, brick, whitened ; ceiling not plastered, joists of ground floor show, not whitened ; floor, large stone flags ; windows, one window slides along side of Bakehouse, skylight, none ; approached by wooden staircase from passage ; trough 1 wooden, fixed ; ovens, 1, brick (6 bushel) ; flour and salt stored in room under house ; ventilation and light, good ; cleanliness in Bakehouse, fair, in storeroom, dirty ; drain inlets, none ; water closet end of passage ; ashbin, dilapidated metal one in yard ; coal kept in passage ; water supply from main ; trade about 10 sacks per week, most trade outdoors on round.

No. 14. Rental £65 ; been in occupation 2 years ; four men ; cubic space, $24\cdot0 \times 15\cdot0 \times 7\cdot0 = 2,520$ feet ; walls, brick, whitened ; ceiling not whitened, joists of ground floor whitened ; floor, large stone flags ; windows, small openings in stallboard, skylight, nil ; two staircases from shop and yard ; troughs, two wooden, fixed ; ovens, two brick (10 bushel each) ; flour stored in bakehouse and room over yard ; salt kept in Bakehouse ; fairly clean ; drain inlets, nil ; water closet in yard, dark and unclean ; ashpit, metal one in yard ; coal kept in cellar under street ; water supply from main.

No. 15. Rental £60 ; been there 30 years ; two men, day work ; cubic space, $21\cdot0 \times 14\cdot0 \times 7\cdot6 = 2,205$ feet ; walls, brick, plastered and whitened ; ceiling, plastered and whitened ; floor, large stone flags ; windows, in stallboards ; skylights, none ; approached by wooden staircase behind shop ; troughs, none ; ovens, one brick built ; flour, sugar, &c., kept in Bakehouse ; ventilation and light fair, gas not necessary ; cleanliness, floor clean, shelves and boxes very dirty ; drain inlets, gully and sink at back end of Bakehouse ; water closet back end of yard which is covered in ; ashpit, metal one in yard ; coal kept in cellar under street ; water supply from main ; trade about $2\frac{1}{2}$ sacks per week.

No. 16. Rental £75 ; occupied 6 years ; two men, night work ; cubic space, $25\cdot0 \times 14\cdot0 \times 8\cdot9 = 3,064$ feet ; walls, brick, whitened ; ceiling not plastered, joists of ground floor whitened ; floor, large stone flags ; windows, 2 in

stallboard and one at end ; skylights, nil ; staircases, two, leading from shop and house ; troughs, two wooden, fixed ; ovens, 1 (10 bushel) ; flour, sugar and salt kept at back of Bakehouse ; ventilation and light good ; cleanliness fair ; drain inlets, none ; water-closets, 1 on staircase ; ashpit, none ; coal kept under counter ; water supply from main and cistern placed at back of Bakehouse, iron, wooden cover ; trade about 18 sacks weekly, nearly all sold over counter.

No. 17. Rental £40 ; period of occupation, years ; 2 men, night work ; cubic space, $13\cdot0 \times 10\cdot9 \times 7\cdot9 = 1083$; walls, brick, plastered, whitened ; ceiling, plastered, whitened ; floor, stone ; windows, one opening into small area in front ; skylight, nil ; wooden staircase leading from passage ; lime-whited, three times yearly ; troughs, two wooden, fixed ; ovens, one, brick built (10 bushel) ; flour stored in room back of Bakehouse ; salt kept in Bakehouse ; ventilation and light, good ; cleanliness, good ; drain inlets, nil ; water closet in yard at back ; ashpit, wooden barrel ; coal kept in cellar by entrance to Bakehouse ; water supply from main ; trade, 16 sacks weekly.

No. 18. Rental £35 ; no employes ; 1 man, day work ; cubic space, $18\cdot3 \times 10\cdot3 \times 7\cdot0 = 1,309$ feet ; walls, brick, plastered, whitened ; ceiling, plastered, whitened ; floor, cement compo ; windows, one, small in stallboard ; skylight, one, into shop floor ; staircases, ladder from shop ; wooden stairs to yard ; troughs, two, one fixed, one movable ; ovens, one brick built (6 bushel) ; flour, salt, &c., kept in small quantities in Bakehouse ; ventilation and light, fair ; cleanliness, fair ; drain inlet, none ; water-closet in yard ; ashpit, metal box ; coal kept in cellar under street ; water supply from main ; about 3 sacks weekly ; probably will not be used as a Bakehouse again.

No. 19. Rental £50 or £52 ; occupied, years ; $6\frac{1}{2}$ years unexpired, 3 men, night and day work ; cubic space, $11\cdot0 \times 10\cdot0 \times 9\cdot3 = 1,018$ feet, $6\cdot3 \times 9\cdot0 \times 8\cdot0 = 450$ feet, $10\cdot3 \times 12\cdot0 \times 6\cdot8 = 820$ feet ; walls, brick built and whitened ; ceiling, not plastered, whitened ; floor, stone ; windows, one, in stallboard, and one ordinary into yard ; no skylight ; approached by wooden staircase from passage ; troughs, two wooden, fixed ; ovens, two (6 and 13 bushel) ; flour, sugar, salt, potatoes, kept in loft ; margarine and spices kept in store-room by Bakehouse ; ventilation, fair ; light, good ; cleanliness, fair ; drain inlets, none ; water-closets, two in yard in good condition ; ashpit in yard, good ; coal in cellar under street ; water supply from main ; trade 16 or 17 sacks per week ; bread baked in one oven, pastry in other.

No. 20. Rental £35 ; been in occupation, 2 years ; 1 man, night work ; cubic space, $15\cdot6 \times 14\cdot0 \times 8\cdot9 = 1898$ feet ; walls, brick and whitened ; ceiling,

plastered, whitened ; floor, wood ; windows, one ; skylight, nil ; wooden ladder from shop ; troughs, two wooden, fixed ; ovens, one (10 bushel) ; flour stored in back-room ; salt kept in Bakehouse ; potatoes in back yard ; ventilation and light, fair ; cleanliness, fair ; drain inlets, nil ; water-closet in yard ; ashpit, metal one in yard ; coal in front cellar ; water supply from main ; trade, 8 sacks per week.

No. 21. Rental £64 ; been there 10 years ; $6\frac{1}{2}$ years unexpired ; 3 men ; night and day work ; cubic space, $17\cdot0 \times 14\cdot0 \times 7\cdot0$ —1,666 feet ; walls, brick, whitened ; ceiling, plastered, whitened ; floor, concrete ; windows, 4 openings in stallboard and glass door ; skylights, nil ; wooden stairs to shop ; stone steps from side ; troughs, 2 wooden, fixed ; ovens, one (12 bushel) ; flour kept in Bakehouse ; potatoes and salt in cellar in yard ; margarine, jam, salt, spices, &c., kept in small cellar under street ; ventilation, fair ; light, good ; drain inlets, nil ; water-closets in yard through glass door ; coal supply, cellar under street ; water supply from cistern in corner of Bakehouse, metal, wooden cover, clean.

No. 22. Rental £60 ; been there 16 years ; lease expires March, 1904 ; 2 men ; night and day work ; cubic space, $14\cdot8 \times 11\cdot9 \times 9\cdot0$ —1,551 feet ; walls, brick, plastered ; ceiling, plastered and whitened ; floor, stone ; windows, one, and opening in stallboard ; skylight, nil ; staircase ladder to shop ; troughs, two wooden, fixed ; ovens, one used and one not used (4 and 12 bushel) ; flour stored in large room under shop ; ventilation, fair ; light, good ; cleanliness, good ; drain inlets, nil ; water-closet in yard ; ashpit, wooden dustbin in yard ; coal kept in cellar in front ; water supply from main ; trade, 11 or 12 sacks weekly.

No. 23. Rental £50 ; been there 3 years ; 7 years unexpired ; two men ; night and day work ; cubic space, $21\cdot6 \times 14\cdot0 \times 7\cdot0$ —2,107 feet ; walls, brick, plastered and whitened ; ceiling, plastered and whitened ; floor, cement ; windows in stallboard ; skylight, one at back ; staircase, one wooden from passage back of house ; troughs, three wooden, fixed ; ovens, 2, 1 not used much (5 and 9 bushel) ; flour stored in loft at back of house ; ventilation and light, good ; cleanliness, limewhiting fair ; drain inlets, nil ; water-closet in yard ; ashpit, metal one in yard ; coal kept in cellar level with Bakehouse ; water supply from main ; trade, 14 sacks weekly ; Bakehouse not used for any other purpose than baking bread.

No. 24. Rental, £55 ; been there 32 years ; 4 men ; day work only ; cubic space, $16\cdot0 \times 14\cdot3 \times 7\cdot9$ and $11\cdot6 \times 10\cdot9 \times 7\cdot9$ —2,728 feet ; walls, brick, plastered and whitened ; ceiling, plastered and whitened ; floor, stone ; windows, one large into area at front, one opening into yard at

back; skylights, none; staircase, one leading from passage; limewashing done twice a year; troughs, none; fixed benches; ovens, one (8 bushel); flour stored in shop; jams, spices, &c., in shop and Bakehouse; ventilation and light fairly good; Bakehouse, dirty; drain inlets, nil; water-closet in yard; ashpit, metal one in yard; coal stored at end of Bakehouse; water supply from main; trade about $2\frac{1}{2}$ sacks of flour weekly.

No. 25. Rental £40; quarterly tenant, been there 28 years; 3 men, night and day work; cubic space, $15\cdot0 \times 14\cdot6 \times 7\cdot0 = 1522$ feet; walls, brick, whitened; ceiling not plastered; floor boards and joists of ground floor whitened; floor, cement; windows in stallboard; skylight, nil; staircase, one wooden, winding from shop very awkward to pass down; limewashing, clean; troughs, two wooden, fixed; ovens, 1 (7 bushel); flour stored in room at back of Bakehouse; salt kept in Bakehouse; ventilation indifferent; light, fair; cleanliness, good; drain inlets, nil; water-closet in yard; ashpit, metal, one under yard; coal stored in cellar at back of Bakehouse; trade, about 9 sacks per week; probably will not apply for certificate.

No. 26. Rent £40; included in the London County Council Housing Scheme; 3 men, night and day work; cubic space, $14\cdot6 \times 13\cdot0 \times 7\cdot6 = 1412$ feet; walls, brick, whitened; ceiling not plastered; floor boards and joists of ground floor whitened; floor, cement; windows, one in stallboard over oven; skylight, nil; staircase, wooden, from passage; limewashing done three times yearly; troughs, two wooden, fixed; ovens, one (9 bushel); flour stored in room at back of Bakehouse; ventilation and light, indifferent; Bakehouse clean; drain inlets, none; water-closet in yard; ashpit, metal, one in yard; coal kept under stairs; water supply from main, has a small metal cistern in yard; trade, about 25 sacks weekly.

No. 27. Rental £ 2 men,
night and day work; cubic space, $24\cdot6 \times 13\cdot0 \times 7\cdot6 = 2389$ feet; walls, brick, plastered and whitened; ceiling partly plastered and partly wood, whitened; floor, stone; windows, stallboard at back over oven, glazed, door at top of stairs and one window opening into front area; skylights, nil, approached from shop and yard by ladder staircase; troughs, two wooden, fixed; ovens, one (10 bushel); flour stored in Bakehouse; ventilation and light, fair; front area, dirty; Bakehouse, clean; drain inlets, nil; water-closet in yard; ashpit, metal, one in yard; coals kept in corner of Bakehouse; trade, 13 to 15 sacks weekly, under management.

No. 28. Rental £50; been there 9 years; 2 men, day work; cubic space, $15\cdot0 \times 11\cdot3 \times 7\cdot0 = 1181$ feet; walls, brick, whitened; ceiling no

plastered ; floor boards and joists of ground floor whitened ; floor, brick and cement ; windows, one in stallboard ; skylights, nil ; staircase, one wooden, from passage ; troughs, one fixed, wooden ; ovens, one (8 bushel) ; flour, potatoes and salt kept in store room ; ventilation and light, not good ; cleanlines-, good ; drain inlets, nil ; water-closet in yard ; ashpit, metal, one in yard ; coal kept in yard ; water supply from main ; trade, about 10 sacks weekly.

No. 29. Rental £75 on lease ; been here three years ; 2 men, night and day work, cubic space, $37\cdot0 \times 9\cdot6 \times 7\cdot6$ —2636 feet ; walls, brick, plastered and whitened ; ceiling, plastered and whitened ; floor cement ; windows, one, in stallboard in front, grating in back ; skylights, nil ; staircase, wood, from shop ; limewhited, twice yearly ; troughs, three fixed, wooden ; ovens, two (6 and 8 bushel) ; flour and sugar stored in Bakehouse ; ventilation and light indifferent ; Bakehouse, clean ; drain inlets ; gully in Bakehouse ; water closet in yard ; ashpit, metal one in Bakehouse ; coal kept in cellar by oven ; water supply from a cistern over sink in Bakehouse, wood, zine lined ; trade, small goods and bread, about 11 or 13 sacks weekly.

No. 30. Rental, freehold ; been here 28 years ; 3 men, night and day work ; cubic space, $24\cdot6 \times 13\cdot9 \times 7\cdot0$ —2359 feet ; walls, brick, whitened ; ceiling, not plastered, floor board and joists of ground floor, whitened ; floor, cement ; windows, one, in stallboard ; staircases, one, ladder from shop, one from passage at back ; troughs, two wooden, fixed ; ovens, two (5 and 9 bushel) ; flour, etc., stored in back-room, communicating with Bakehouse ; ventilation indifferent ; light, natural bad, lighted by electricity ; cleanliness, fair ; drain inlets ; one gully in Bakehouse ; water closet, one in covered-in area at back of basement, and indirectly communicating with Bakehouse ; ashpits, nil ; coal stored in warehouse ; water supply from main, reserve cistern also ; trade about 15 sacks per week.

No. 31. Rental £65 on lease ; been here 36 years ; 3 men, early morning and day work ; cubic space, $17\cdot6 \times 16\cdot0 \times 7\cdot6$ —2100 feet ; walls, brick, whitened ; ceiling, plastered, whitened ; floor, stone ; windows in stallboard ; skylight, one ; staircase, ladder from passage ; troughs, two, wood, fixed ; ovens, two (8 bushel each) ; flour stored in loft back of Bakehouse ; potatoes kept upstairs ; ventilation and light good ; cleanliness, very clean ; drain inlets ; one gully in Bakehouse ; water-closet in yard ; ashpit in yard ; water supply from main, also cistern in cellar ; trade 15 sacks weekly

No. 32. Rental £65 ; been here 24 years ; 3 men, night and day work ; cubic space, $20\cdot0 \times 12\cdot \times 8\cdot6$ —2040 feet, and $12\cdot0 \times 10\cdot0 \times 8\cdot6$ —1020 feet ; walls,

brick, plastered and whitened; ceiling, wood, whitened; floor, cement; windows, two, opening into areas in front, and one opening in stallboard at side; staircases, one from shop and two others from house; troughs, two, wood, fixed; ovens, two (4 and 10 bushel); flour stored in Bakehouse; potatoes outside Bakehouse; ventilation, fair; light, good: grating fixed over oven to take steam away; cleanliness, fair; drain inlets, nil, in Bakehouse; water-closets in yard; ashpit, one metal in yard: coal kept in cellar outside; trade about 22 sacks per week.

No. 33. Rental £50; been here $3\frac{1}{2}$ years; three men, night and day work; cubic capacity, $13\cdot0 \times 13\cdot0 \times 7\cdot0 = 1,183$ feet; walls, brick, plastered and whitened; ceiling, plastered and whitened; floor, stone; windows, nil; skylights, one over oven; staircase, wooden, from passage; limewashing done frequently; troughs, two wooden, fixed; ovens, one (9 bushel); flour stored in back of Bakehouse and some upstairs; ventilation fair, light fair; cleanliness fair; drain inlets, none in Bakehouse; water closets, one in yard; ashpit, metal, one in yard; coal kept in cellar, side of oven; water supply from main; trade about 18 sacks weekly.

No. 34. Rental £50; been here 4 years; two men, night and day work; cubic capacity, $21\cdot0 \times 10\cdot0 \times 6\cdot3$ and $9\cdot0 \times 3\cdot0 \times 6\cdot3 = 1,482$ feet; walls, brick, whitened; ceiling, plastered and whitened; floor, stone and brick; windows, none; two gratings; skylights, none; staircase, wood, from shop; limewhited every three months; troughs, two, wood, fixed; ovens, one (10 bushel); flour stored in Bakehouse; ventilation indifferent; light fair; clean; water closet in yard; ashpit, one metal, in yard; coal kept in cellar under street; trade about 12 sacks per week.

No. 35. Rental, £60; been here 17 years; two men, night and day work; cubic capacity, $21\cdot3 \times 12\cdot6 \times 7\cdot0$ and $3\cdot6 \times 3\cdot6 \times 7\cdot0 = 1,774$ feet; walls, brick, plastered and whitened, very damp; ceiling, not plastered; floor boards and joists of ground floor whitened; floor, stone and some brick; windows, one opening into area; skylights, none; two pavement lights; staircase, one ladder; limewhited three times yearly; troughs, three, wood, fixed, two only used; ovens, one (9 bushel); flour stored in rooms upstairs, potatoes and salt kept in Bakehouse; ventilation, bad; light, indifferent; fairly clean; drain inlets, one gully in Bakehouse; water closet in yard; ashpit, metal, one, in Bakehouse; coal kept in front cellar; water supply from main; trade, about 14 sacks weekly.

- No. 36.** Rental £75; been here 7 years; three men, night and day work; cubic capacity, $16'6 \times 12'6 \times 7'3 = 1,495$ feet; walls, brick, plastered and whitened; ceiling, plastered and whitened; floor, cement; windows, two into yard; skylights, none; staircase, open ladder, from passage; limewhited twice yearly; troughs, two, wooden, fixed; ovens, two (6 and 8 bushel); flour stored in room under shop, potatoes kept in Bakehouse; ventilation, good; light, good; drain inlets, one gully in Bakehouse; ashpit, in yard; coal kept in Bakehouse; trade, 17 sacks weekly.
- No. 37.** Rental, £60, been here 14 years; two men, night and day work; cubic space, $16'6 \times 10'6 \times 7'6 = 1,299$ feet; walls, brick, plastered and whitened; ceiling, not plastered; floorboards and joists of ground floor whitened; floor, concrete, in bad condition; windows, none; skylight, none; staircase, ladder from shop; limewashed twice yearly; troughs, two wooden, fixed; ovens, one (9 bushel); flour stored upstairs, also salt; ventilation by upcast shaft, not sufficient; light, bad, gas has to be burnt in daytime; cleanliness, indifferent; drain inlets, one gully in Bakehouse; water-closet in yard, fair condition; ashpit, metal, one in yard; coal kept in cellar communicating with Bakehouse; water supply from main; trade, 10 or 11 sacks weekly.
- No. 38.** Rental, £55, been here two years; three men, night and day work; cubic space, $25'9 \times 18'6 \times 7'6$, less $3'9 \times 7'3 \times 7'6 = 3,445$ feet; walls, brick, plastered, whitened; ceiling, wood, whitened; floor, stone; windows, none; skylights, none; one pavement light at back and one at front; staircase, ladder from passage: lime-washing four times yearly; troughs, two, wooden, fixed; ovens, one (8 bushel); flour stored in Bakehouse, potatoes upstairs; ventilation, indifferent; light indifferent, gas burnt in day; cleanliness, fair; drain inlets, one gully in Bakehouse; water-closet in yard; ash-pit in yard; coal kept in cupboard of Bakehouse; water supply from cistern in Bakehouse; trade, 18 sacks weekly.
- No. 39.** Rental, £300; seven men, night and day work; cubic capacity, $34'6 \times 16'6 \times 9'6$, less $8'3 \times 5'0 \times 9'6 = 5,672$ feet; walls, brick, plastered and whitened; floor, stone flags; windows, none; skylight, one large opening in stallboard and pavement light; staircase, ladder, leads from shop; limewashed three times yearly; troughs, two wooden, fixed; ovens, two (8 bushel each); flour, potatoes, &c., stored in Bakehouse; ventilation, indifferent;

a movable electric fan is kept going in different parts of the Bakehouse ; light, indifferent, electric light is used nearly at all times ; cleanliness, fair ; drain inlets, one gully in Bakehouse ; water-closets, one in basement, bad position ; coals, kept in Bakehouse by oven ; trade, 14 to 16 sacks weekly.

No. 40. Rental, £50, been here four years ; three men, night work ; cubic space, $29\cdot0 \times 15\cdot0 \times 8\cdot9 = 3,806$ feet ; walls, brick, plastered, whitened ; ceiling, match-lined, plastered and whitened ; floor, cement and stone ; windows, two openings in stallboard ; skylight, none ; staircase, steep open ladder ; limewhited, three times yearly ; troughs, two wooden, fixed ; ovens, one (10 bushel) ; flour stored in back of Bakehouse ; ventilation, indifferent (? bad) ; light, indifferent (? bad) ; cleanliness, very fair ; drain inlets, none in Bakehouse ; water-closet, in yard, good ; ashpit in yard ; coal kept side of oven ; water supply from main ; trade, 20 to 22 sacks weekly.

No. 41. Rental £85 ; been here 7 years ; 2 men early morning and day work ; cubic capacity, $14\cdot6 \times 14\cdot0 \times 7\cdot0 = 966$ feet ; walls, brick, plastered and whitened ; ceiling, plastered and whitened ; floor, stone ; windows, none ; skylights, 1, opens into yard ; staircase, 1, ladder from shop ; limewhited three times yearly ; troughs, 2 wood, fixed ; ovens, 2 (8 and 10 bushel) ; flour, &c., stored in room back of Bakehouse ; ventilation, indifferent ; light, indifferent ; cleanliness, good ; drain inlets, one gully in Bakehouse ; water-closet in yard ; ash-pit in yard ; coal kept under street ; water supply from main ; trade, 18-20 sacks weekly.

No. 42. Rental, £ ; been here 1 year ; 2 men, early morning work ; cubic space, $19\cdot6 \times 12\cdot0 \times 7\cdot9 = 1834$ feet ; walls, brick, plastered, whitened ; ceiling, boards whitened ; floor, stone ; windows, 2 openings in stall board ; skylights, none ; staircase, 1, from shop ; limewhited three times yearly ; troughs, 2 wood, fixed ; ovens, 2 (4 and 7 bushel) ; flour stored in loft over Bakehouse ; potatoes kept outside ; ventilation, indifferent ; light, poor ; cleanliness, good ; drain inlets, 1 gully in Bakehouse ; water-closets, 1 in area and 1 upstairs ; ashpit, metal, 1 in cellar adjoining Bakehouse ; coal kept in cellar.

No. 43. Rental, £58 ; been here 28 years ; 3 men, night and day work ; cubic space, $\left. \begin{matrix} 13\cdot0 \times 8\cdot9 \\ 12\cdot0 \times 11\cdot8 \end{matrix} \right\} 7\cdot3 = 1840$ feet ; walls, brick,

plastered, and whitened ; ceiling, not plastered ; floor, boards and joists of ground floor whitened ; floor, red tiles ; windows, 2 in stallboard ; skylights, none ; staircase, 1 ladder from shop ; limewhiting done 3 times yearly ; troughs, 2 wood, fixed ; ovens, 2 ; flour stored in room at end of Bakehouse ; ventilation, poor ; light, bad ; gas has to be burnt at all times ; cleanliness, fair ; drain inlets, one gully in Bakehouse ; water-closets, 1 upstairs ; ashpits, metal, 1 in Bakehouse ; coal kept in cellar under street ; water supply from main ; trade about 12 sacks weekly.

No. 44. Rental, £45 ; been here 3 years ; 2 men. night and day work ; cubic space, $14'3 \times 12'6 \times 7'3 = 1292$. Walls, brick, whitened ; ceiling, not plastered ; floor, boards and joists of ground floor whitened ; floor, stone ; windows, 1 in stallboard ; staircase, 1 from shop ; limewhited 3 times yearly ; troughs, 2 wood, fixed ; ovens, 2, only 1 used (8 bushel) ; flour, &c., stored in Bakehouse ; cleanliness, fair ; drain inlets, none in Bakehouse ; water-closets, 1 in yard, good condition ; coal kept in small cellar back of flour store ; water supply from main ; trade about 9 sacks weekly.

No. 45. Rental, £65 ; been here 12 years ; 3 men ; night and day work ; cubic space, $\begin{matrix} 13'9 \times 8'6 \\ 15'6 \times 13'0 \end{matrix} \left\{ \begin{matrix} - 847 \\ 7'3 - 1,461 \end{matrix} \right\} = 2,308$ feet ; walls, brick, whitened ; ceiling, plastered, whitened ; floor, stone ; windows, nil, glazed door leading to area and pavement lights ; skylights, nil, staircase one from shop ; limewhited 3 times yearly ; troughs, 4 wood, fixed ; ovens, 2 (8 and 10 bushel) ; flour stored in room at back of Bakehouse ; potatoes kept in covered area ; ventilation, indifferent ; light, fair ; cleanliness, good ; drain inlets, none in Bakehouse ; water-closets, one at end of passage, one (for men's use) in area, latter foul ; ash-pit, in yard ; coal kept in front area ; water supply from zinc-lined wooden cistern in kitchen easily accessible for cleaning ; trade, about 20 sacks per week.

No. 46. Rental, £55 ; been here 4 months ; 3 men ; night and day work ; cubic space, $16'6 \times 14'6 \times 7'6 = 1,733$ feet ; walls, brick, whitened ; ceiling, not plastered, floor boards and joists of ground floor whitened ; floor, cement ; windows, one half-glazed door leading to area ; skylight, nil ; staircase leads from passage ; limewhited twice yearly ; troughs, 1 wood, fixed ; oven, 1 (9 bushel) ; flour stored

Bakehouse and room adjoining ; potatoes kept in area ; ventilation in and light, indifferent ; cleanliness, dirty ; drain inlets, none in Bakehouse ; water-closets, 1, leads from wash-house ; ash-pit, metal one in yard ; water supply from main ; trade, about 7 sacks weekly.

[NOTE.—I understand that some owners have made minor, and some even major, alterations since my inspection. The above facts, of course, have relation to the condition of things as existing at the time of my visit in the summer. The same remark applies elsewhere in the report.—G.N.]

CHAPTER V.

THE ABOVEGROUND BAKEHOUSES.

As we have pointed out there are in Finsbury 23 aboveground Bakehouses, and whilst it is unnecessary in the present report to discuss such Bakehouses in any detail it is desirable to add a brief note upon each. For convenience they are numbered 47-69.

These aboveground Bakehouses are situated in the following streets :

Aylesbury Street, 10.
 Chapel Street, 55, 65.
 Chiswell Street, 64.
 Clerkenwell Green, 6.
 Cloudesley Road, 4.
 Compton Street, 60.
 Field Place, 13.
 Goswell Road, 34, 94, 164, 202.
 Helmet Row, 2.
 Lever Street, 136.
 Leverington Street, 2.
 Liverpool Road, 7, 43.
 Old Street, 161.
 Penton Street, 18, 44.
 Whitecross Street, 97, 177.
 Wynford Road, 22.

During the last few years these Bakehouses have shown much improvement, and are now fairly well kept and generally clean. Many of them are far from convenient and fall short of modern requirements. But in the main, and especially in comparison with the underground Bakehouses, they are satisfactory, and I am glad to report a general effort towards cleanliness and proper equipment.

The list is as follows. (The numbers purposely do not follow the alphabetical order of the addresses) :—

47. Leasehold ; day and night work ; 3 men ; cubic capacity, 1,101 feet ; limewashed ; 2 fixed troughs ; 1 oven ($7\frac{1}{2}$ bushel) ; flour in adjoining room ; ventilation, light and cleanliness, good ; sanitary conveniences, sufficient ; water from cistern, clean.
48. Leasehold ; night work ; 3 men ; cubic capacity, 3,738 feet ; lime-washed ; 2 fixed troughs ; 2 ovens (7 and 9 bushels) ; flour in loft ; ventilation, light and cleanliness, good ; sanitary conveniences, sufficient ; water from main and cistern.
49. Leasehold ; night work ; 2 men ; cubic capacity, 1,366 feet ; lime-washed ; 2 fixed troughs ; 1 oven (12 bushel) ; flour in loft ; ventilation, light and cleanliness, good ; sanitary conveniences, sufficient ; water from main.
50. Leasehold ; day work ; 2 men ; cubic capacity, 3,206 feet ; lime-washed ; 1 fixed wooden bench ; 1 oven (8 bushel) ; flour in basement ; ventilation, light and cleanliness, good ; sanitary conveniences, sufficient ; water from main.
51. Leasehold ; night work ; 2 men ; cubic capacity, 1,338 feet ; lime-washed ; 2 fixed troughs ; 1 oven (6 bushel) ; flour in storeroom ; ventilation, light and cleanliness, good ; sanitary conveniences, sufficient ; water from main.
52. Leasehold ; night work ; 2 men ; cubic capacity, 1,929 feet ; lime-washed ; 2 fixed troughs ; 1 oven (11 bushel) ; flour in loft ; ventilation, light and cleanliness, good ; sanitary conveniences, sufficient ; water from main.
53. Leasehold ; night and day work ; 5 men ; cubic capacity, 1,680 feet ; limewashed ; 2 fixed troughs ; 2 ovens (12 and 4 bushel) ; flour in loft ; ventilation, light and cleanliness, good ; sanitary conveniences, sufficient ; water from cistern, good condition.
54. Leasehold ; night work ; 2 men ; cubic capacity, 4,320 feet ; lime-washed ; 2 fixed troughs ; 1 oven (9 bushel) ; flour in Bakehouse and passage leading from shop to Bakehouse ; ventilation, light and cleanliness, good ; sanitary conveniences, sufficient ; water from main.

55. Leasehold ; day work ; 4 men ; cubic capacity, 1664 feet : lime-washed ; 1 fixed trough ; 1 oven (8 bushel) ; flour in room above Bakehouse ; ventilation, light and cleanliness, good ; sanitary conveniences, sufficient ; water from main.
56. Leasehold ; day work ; two men ; cubic capacity, 855 ; limewashed ; 2 fixed troughs ; 1 oven (8 bushel) ; flour in room behind shop ; ventilation, light and cleanliness, good ; sanitary conveniences, sufficient ; water from main.
57. Yearly tenancy ; night work ; 2 men ; cubic capacity, 1881 feet ; lime-washed ; 2 fixed troughs (only one used) ; 2 ovens (9 and 6 bushel) ; flour in loft ; ventilation, light and cleanliness, good ; sanitary conveniences, sufficient ; water from main.
58. Leasehold ; night work ; 2 men ; cubic capacity, 1,607 feet ; lime-washed ; 2 fixed wooden troughs ; 2 ovens (8 and 4 bushels) ; flour in lofts above ovens, dirty ; ventilation, light and cleanliness, fair ; sanitary conveniences, sufficient, no dust box ; water from main.
59. Leasehold ; day and night work ; 3 men ; cubic capacity, 1,608 feet ; limewashed ; 3 fixed troughs ; 1 oven ; flour stored over Bakehouse ; ventilation, light and cleanliness, good ; sanitary conveniences, sufficient ; water from main.
60. Leasehold ; night and day work ; 2 men ; cubic capacity, 1,493 feet ; limewashed ; 1 fixed trough ; 1 oven ; flour in passage adjoining yard ; ventilation, light and cleanliness, good ; sanitary conveniences, sufficient ; water from cistern, in good condition.
61. Leasehold ; night and day work ; 2 men ; cubic capacity, 1,342 feet ; limewashed ; 2 fixed troughs ; 1 oven ; flour in shed in back yard ; ventilation, light and cleanliness, fair ; sanitary conveniences, sufficient ; water from cistern, cover defective and foul.
62. Leasehold ; night and day work ; 3 men ; cubic capacity, 1,190 feet ; limewashed ; 2 fixed troughs ; 1 oven ; flour in room over Bakehouse ; ventilation, light and cleanliness, fair ; sanitary conveniences, sufficient, but without ventilation ; no cover to ashpit ; water from cistern, in good condition.

63. Leasehold ; night and day work ; 4 men ; cubic capacity, 2,367 feet ; limewashed ; 2 fixed troughs ; 1 oven ; flour in room adjoining Bakehouse ; ventilation, light and cleanliness, good ; sanitary conveniences, sufficient ; water from main.
64. Leasehold ; night and day work ; 2 men ; cubic capacity, 1,483 feet ; walls, limewashed ; ceiling, painted ; 2 moveable troughs ; 1 oven ; flour in room above Bakehouse ; ventilation, light and cleanliness, good ; sanitary conveniences, sufficient ; water from cistern, good condition.
65. Leasehold ; day work ; 1 man ; cubic capacity, 1,519 feet ; lime-washed ; 2 fixed wooden troughs (not used) ; 1 oven (10 bushel) ; flour in Bakehouse ; ventilation, light and cleanliness, fair ; sanitary conveniences, sufficient ; water from main.
66. Leasehold ; night work ; 2 men ; cubic capacity, 1,512 feet ; lime-washed ; 2 fixed wooden troughs ; 2 ovens (8 and 4 bushel) ; flour in basement below shop ; ventilation, light and cleanliness, fair ; sanitary conveniences, sufficient (defective soil pipe runs through Bakehouse) ; water from main.
67. Leasehold ; night work ; 2 men ; cubic capacity, 2,808 feet ; lime-washed ; 3 fixed wooden troughs ; 2 ovens (8 and 7 bushel) ; flour in side shed from Bakehouse ; ventilation, light and cleanliness, good ; sanitary conveniences, sufficient ; water from main.
68. Leasehold ; day work ; 4 men ; cubic capacity, 8,132 feet ; lime-washed ; 5 benches ; no ovens ; 2 furnaces ; flour, &c., in front shop ; ventilation, light and cleanliness, fair ; sanitary conveniences, sufficient, but W.C. very dirty with defective water supply ; no ash-pit ; water from cistern, foul (zinc cover defective.)
69. Leasehold ; day work ; 9 men ; cubic capacity, 6,809 feet ; lime-washed ; 5 moveable troughs ; 3 ovens ; flour in room over Bakehouse ; ventilation, light and cleanliness, very good ; sanitary conveniences, sufficient ; water from main.

CHAPTER VI.

GENERAL CONDITIONS.

There are in the Borough of Finsbury, at the present time, 69 Bakehouses, 46 of which are underground and 23 of which are aboveground. In these 69 Bakehouses, 190 men work and the average number of hours *per diem* is 11. In 9 of the Bakehouses the work is wholly during the day, in 45 work is carried on only or chiefly during the night, and in the remaining 15 it is partly day work and partly night work. The main figures may be set out as follows :—

Bakehouses.	No.	No. of men at work.	Average No. of hours daily.	No. of Bakehouses in which work is done in day only.
Underground... ..	46	125	11½	3
Aboveground... ..	23	65	10½	6
Totals or averages ...	69	190	11	9

In a number of cases the employés live in the house over the bakery as lodgers of their employer. It may be added also that in a large number of cases those employed belong to various foreign nationalities, the German race perhaps predominating. All the bread made in Finsbury is prepared by hand, there is no machine-made bread.

During the last 20 years there has been a marked decline in the number of Bakehouses, many of which have succumbed to the requirements of sanitary legislation. The following are the returns since 1882 :—

Bakehouses in Finsbury.	1882.	1892.	1902.
Clerkenwell Division	60	54	45
St. Luke's Division	45	46	24
Total	105	100	69

The trade of most of the Bakehouses in Finsbury is to supply the immediate neighbourhood in which the Bakehouse is situated, either over the counter or by barrow. Many of the bakers also supply bread to small general shops and coffee-houses. In no case is there a Bakehouse used for sleeping purposes. One or two instances occur in which the Bakehouse was used occasionally as the family laundry, and in not a few cases dogs or cats are kept in the Bakehouse, or have the run of the Bakehouse. In most cases the "governor" or occupier himself works part time in the Bakehouse.

Bread making in Finsbury is of a varied nature, but in the main, consists of the manufacture of cottage,* tin and long loaves, rolls and twists. These different kinds of loaf are made as a rule from the same dough. The flour is obtained from town or country millers, the former commonly supplying a mixed flour, and the latter a home grown. In the Bakehouse a mixture of flour is used. In the better Bakehouses the blend consists of "whites" and "best patents," and the poorer and cheaper bread is made from a dough derived from a blend of "whites" and "households" or "second patents." The "patents" flour, the result of the mechanical process of milling, is as a rule poor in proteids, but rich in starch. Its purity of colour makes it useful for the preparation of fancy breads and pastry. It is found in practice that the best bread is made from blends, because wheat differs in composition, and by this means variations are harmonised. Hence, it comes about that the mixture of flour commonly used is partly of foreign and partly of home growth. Potato is often mixed with the dough to give it a lighter consistence (20 or more pounds to every 3 sacks). There is said to be no alum used now-a-days. The average amount of flour used is about 15 sacks per Bakehouse per week, but it varies from 3 to 30.

Half of the underground Bakehouses possess two ovens each, although the two are not always in use. The size varies from 3 bushels to 15 bushels. Almost without exception the ovens are of the old fashioned brick kind, with side fires and top flues.

* The well known cottage loaf is a half-quartern (2 lbs.); one sack of flour (280 lbs.) would yield about 180 such loaves, and about 320 such loaves would be baked in a 10 bushel oven.

Position and Construction.—Generally it may be said that the aboveground Bakehouses are situated at the back of the house, on the ground floor, occupying part or all of the original yard space ; and the underground Bakehouses are situated under the shop, in the front, below the footway. With several exceptions the construction or position of all the 69 Bakehouses is open to criticism, and many of them to very grave criticism.

Confining ourselves to the underground Bakehouses it must be said that in addition to their unsatisfactory position the Bakehouses are as a rule of ill-construction. The height with few exceptions is less than eight feet, and in some instances is not much more than six. In no case out of the 46 is the height three feet above ground. The entrance is by means of a more or less awkward staircase or ladder. The walls are generally limewashed, and the windows and ventilators small, and, as a rule, closed. The troughs are with one or two exceptions fixed. The flour is kept stored in the Bakehouse or in a cellar off the Bakehouse. In a number of cases there is no proper ceiling, the joists and floor boards of the ground floor being left bare in the Bakehouse.

Light.—It is obvious that underground Bakehouses will be deficient in light. In practice this means, first, uncleanness, and secondly, artificial illumination. The former is detrimental to the bread and the latter to the workers. In 22 of the 46 underground Bakehouses the light is extremely bad, in half-a-dozen of them the gas is *always* required ; in 18 the light is fair ; and in six it is good and sufficient. In one the artificial illumination is electric.

Cleanliness.—There can be no doubt that the owners of underground Bakehouses in Finsbury have, in the last few years, made a great effort to maintain a high standard of cleanliness. The limewashing is more or less regularly done, and the floors are kept fairly clean. There are, unhappily, exceptions to this rule. But in spite of commendable effort and intention it must be said that it is almost impossible to maintain real cleanliness in underground

Bakehouses as they exist at present. Yet bread should be made by clean workers, in clean premises, by a clean process. Flour dust is of course unavoidable, but street dirt and shop dust should be prevented, and personal uncleanness should be avoided. In not a few instances I have found dust blowing in through the stallboard openings, dust and dirt falling through the unceiled rafters and joists, all sorts of filth collected under the fixed troughs, or workers quite innocent of personal cleanliness.

The Air of Bakehouses.—One of the chief grounds on which underground Bakehouses are open to criticism is the unsatisfactory condition of their atmosphere, and therefore it seemed desirable that a somewhat careful examination should be made on this point. Particularly was this desirable in that various owners and persons interested have suggested to me that underground Bakehouses were, after all, very healthy places, the air of which would compare favourably with aboveground Bakehouses, or indeed with the air of the street. Whilst it is true that the onus of proof does not rest with the Local Authority whose only duty it is to administer the Act, it has seemed desirable to enquire fully into the actual conditions existent in Finsbury in order the better to administer the Act in this particular Borough.

The examination of the air naturally divided itself into three main divisions, (*a*) a chemical examination, particularly as to the presence of carbonic acid gas (CO_2); (*b*) an estimation of the temperature and degree of humidity; and (*c*) a bacteriological examination.

(*a*) The first of these investigations has been carried out by the kindness of Mr. Kear Colwell, the Public Analyst for the Borough. He visited eight typical underground Bakehouses early in the morning in the middle of the working hours, and whilst everything was taking its usual course, and made a thorough examination of the air with a view of determining the degree of carbonic acid gas (CO_2) present in the atmosphere. The facts he obtained are clearly set out in the following table, to which he has also added some explanatory notes:—

No. of Sample	Where collected.	Above or under ground.	Date of Collection.	Time.	Temperature ° F.	Atmospheric pressure.	State of Atmosphere outside.	Carbonic CO ₂ , parts per 10,000.	Remarks.
1	Bakehouse A ...	Under	1902 21 July	A.M. 7.10	66.0	29.96	clear, slight westerly breeze.	14.5	Shop open; Sample taken while dough was being worked; 2 men; cub. cap. 1,840 ft.
2	Street Air (outside A)...	—	do.	7.20	53.6	do.	do.	4.9	
3	Bakehouse B ...	Under	23 July	6.30	69.8	29.88	clear, N.W. breeze.	12.0	Shop shut; dough being moulded; top of dough bin raised; window open; 2 men; cub. cap. 1,774.
4	Bakehouse C ...	Under	do.	7.0	68.0	do.	do.	17.5	Shop shut; oven being charged; 2 men; cub. cap. 1,299.
5	Street Air (outside C)	—	do.	7.15	57.2	do.	do.	4.5	
6	Bakehouse D ...	Under	25 July	6.30	75.2	29.90	do.	16.9	Shop and doors of Bakehouse open; batch being drawn from oven; 3 men; cub. cap. 3,806.
7	Bakehouse E ...	Under	do.	6.50	80.6	do.	do.	13.6	Shop and doors of Bakehouse open; bread being drawn from oven; 2 men; cub. cap. 3,445.
8	Bakehouse F ...	Under	do.	7.10	86.0	do.	do.	15.8	Shop open; bread in oven; 2 men; cub. cap. 2,359.
9	Street Air (outside F)	—	do.	7.30	60.0	do.	do.	4.6	
10	Bakehouse G ...	Under	15 Sept.	7.0	77.0	29.96	clear, very slight air movement.	16.3	Shop open; batch in oven; dough in bin rising; 2 men; cub. cap. 1,181.
11	Street Air (outside G)	—	do.	7.30 P.M.	59.0	do.	do.	4.4	
12	Bakehouse H ...	Under	do.	3.0	75.2	29.84	clear, westerly breeze.	12.0	Shop closed; dough being kneaded; 1 man; cub. cap. 1,713.
13	Street Air (outside H)	—	do.	3.15 A.M.	62.6	do.	do.	3.9	
14	Bakehouse Z ...	Above	1 Oct.	7.40	63.5	29.80	clear, strong W. breeze.	4.9	Shop open; Bakehouse on shop level; Queen's post roof with trap door; ovens closed; bread just drawn from ovens; 2 men; cub. cap. 2808.
15	Street Air (outside Z)	—	do.	7.50	53.6	do.	do.	3.8	
	Normal Country Air (Standard) ...	—	—	—	60.0	30.00	—	3.0	

NOTES.—The estimation of the CO₂ was made by Pettenkofer's method. Samples of 10 litres were taken and examined at once. In all cases the amount of oxygen and nitrogen was also estimated, but as the results varied only slightly from the normal, the figures have not been included in the Table.

From the observations made it appears that the air becomes most charged with CO₂ at the time the baked bread is being drawn from the oven. It will be noted that the season of the year was late summer. In the winter the amount of CO₂ would probably be considerably higher. Probably even in the present Table the degree of CO₂ recorded is much below the amount usually present, as in all the cases the Bakehouses were of such construction that it was impossible to enter them for the collection of samples of air without creating very free ventilation. Most of them also had other means of ventilation, either through the open shop or by means of windows, at the time of the visit. J. K. C.

Mr. Colwell also examined the air in a typical aboveground Bakehouse for purposes of comparison, and the air of the street in six cases for the same purpose.

It is customary to take the degree of CO_2 present in air as indication of its purity or otherwise. Carbonic acid gas (or carbon di-oxide) is a normal constituent of the atmosphere, forming 3 volumes out of every 10,000 volumes of fresh country air. In ordinary town air this amount is therefore always present, but to it has been added products of respiration and combustion, and accordingly there is always present in such air a "permissible" impurity, that is to say a degree of impurity which is unavoidable. Dr. Chaumont fixed this at .02 per cent., or 2 parts in every 10,000. Anything beyond this would be an impurity. Carnelly Haldane and Anderson fixed the standard of permissible impurity at 6 parts per 10,000 in dwellings and 9 in schools. The general rule now is that CO_2 is reckoned an impurity if amounting to more than 5 parts in 10,000 of air (*i.e.*, 3 parts in fresh air *plus* 2 as permissible impurity). Angus Smith found it present as follows :—

	Volumes of CO_2 in 10,000 volumes of air.
On mountains and moors in Scotland (mean of 75 analyses)	3.36
In the streets of Glasgow (mean of 42 analyses)...	5.02
London, E C. (mean of 12 analyses)	4.74
Manchester streets, ordinary weather	4.03
During fogs in Manchester	6.79

Dr. Russell found the average for London air at St. Bartholomew's Hospital was 4 parts per 10,000, and during foggy weather 7 per 10,000. In Finsbury street air, it will be seen that Mr. Colwell found CO_2 to be present to the extent of 4.3 per 10,000 (mean of six analyses), in a typical above ground

Bakehouse it was 4.9, and in underground Bakehouses it varied from 12.0 to 17.5 per 10,000. His results may be set out as follows :—

	Volumes of CO ₂ in 10,000 volumes of air.
Open air of streets in Finsbury (mean of six analyses)	4.3
Air of typical above ground Bakehouses	4.9
Air of typical underground Bakehouses (mean of eight analyses)	14.8

This shows a very high degree of vitiation, but perhaps not more than might be expected under the circumstances. For we have in addition to the underground position, a considerable absence of ventilation and exceptional production of CO₂. There is the respiration of the workers (yeilding about one cubic foot of CO₂ per man per hour*), the oven, the gas burners,† and the fermentation of the dough. Whilst these conditions explain the presence of the high degree of CO₂ they also emphasise the imperative necessity of abundant ventilation wherever bread is made, especially when it is remembered that the atmosphere is one in which men are working for eleven hours each day.

* *Journal of Hygiene*, 1902. Vol. ii., p. 430 (Haldane).

† A common gas jet, as usually met with in workshops and bakehouses consumes from 5 to 10 cubic feet of gas per hour; and this amount of ordinary English gas produces, in burning, from 2½ to 5 cubic feet of carbonic acid gas. So that this amount of CO₂ is added every hour that each jet of gas is burning (Haldane). Incandescent mantles use up much less gas per hour than ordinary burners and yeild much more light. They are therefore preferable in workshops. By the use of incandescent electric light, all the inconveniences due to air vitiation and heat from gas jets can be avoided (Haldane).

Further, it should not be forgotten that the figures obtained by Mr. Colwell, in respect of the CO_2 , are in all probability considerably below the mark of what is usually present. The differences of temperature and the various openings of the Bakehouse, both for ventilation and for the exigences of the trade, admit of considerable variation of the CO_2 actually found to be present, and these conditions are in full operation when the shop is opened and persons are coming and going in the Bakehouse. Haldane has pointed out, that, as a general rule, the air in basements is relatively pure on this account. But, during the night, such conditions do not pertain in the same degree. The shop is shut, the staircase opening is closed, often the ventilators are closed and the air is not changed. The examinations were, therefore, made at a time favourable to the Bakehouse than otherwise. The exact position of the Bakehouse and the proximity or otherwise of areas also affects the question. Out of the 46 underground Bakehouses 41 *have no part above the level of the ground* (see Chart at p. 21). Many of them also have practically no area, whilst others such as B. and H. have areas. This is probably one reason why the CO_2 in B. and H. was lower than in C. which, like many other Bakehouses, is a "well."

(b) The Temperature and Humidity.

The following table contains the records of temperature and relative humidity inside and outside eight typical underground Bakehouses and one typical above ground Bakehouse, in each case the records being taken at the same time. It may be explained that the relative humidity (or moistness) of the air is the amount of moisture present in the air expressed as a percentage of the amount of moisture just necessary to cause saturation, 100 representing saturated air, or air carrying its maximum degree of moisture. The relative humidity generally accepted as standard in this country is about 70-75. A very fine dry day would record, say, between 50-60, a damp day would record about 90.

BAKEHOUSES.

Particulars of Wet and Dry bulb Thermometer Readings.

INSIDE THE BAKEHOUSE.						OUTSIDE THE BAKEHOUSE.					
Bakehouse.	Date.	Time when deposited.	Time when taken out.	Dry.	Wet.	Relative Humidity.	Position.	Dry.	Wet.	Relative Humidity.	Remarks.
H ...	1902. 15 Sept.	P.M. 2.45	P.M. 3.0	71.0	63.0	61.1	Yard...	61.0	54.5	64.4	Fine bright day.
D ...	16 Sept.	3.5	3.40	70.0	63.0	64.9	Yard...	56.0	52.0	75.7	Raining slightly.
B ...	do.	3.50	4.20	67.0	61.0	68.8	Yard...	58.5	57.0	91.9	Inclined to be wet.
C ...	17 Sept.	2.45	3.23	67.0	57.0	52.6	Yard...	60.0	52.0	57.7	Fine day.
E ...	do.	3.30	4.0	71.0	61.0	53.9	Yard...	64.0	53.5	49.6	Do.
A ...	19 Sept.	3.15	3.45	68.0	57.5	51.2	Flat ...	58.5	50.5	58.0	Fine day, rather close.
Z ...	29 Sept.	3.15	3.45	70.0	60.0	53.5	Yard...	58.0	52.0	65.9	Fine day.
F ...	do.	3.55	4.25	73.0	63.0	54.5	Yard...	56.0	51.0	70.6	Do.
G ...	30 Sept.	3.0	3.30	69.0	59.0	53.3	On yard wall	57.0	51.0	65.4	Do.

N.B.—These observations were made in each case after the day's work had been finished, and not during the period when the air of the Bakehouses would be exceptionally hot and dry.

From this table it will be seen that the air of Bakehouses is, on occasion, more than 20 per cent. drier than outside air. It will be noticed that these observations were made in the Bakehouse after all the work had been done. In order to test the matter during the process of baking, examinations were also made early in the morning, and one such reading may be added here :—

Time at which Readings were taken in Underground Bakehouse.	Relative Humidity inside Bakehouse.	Relative Humidity outside Bakehouse.	Percentage Difference.
Early morning, work pro- ceeding.	66	92	26
Early morning, batch of bread being drawn from oven.	58	92	34
Afternoon, work finished ...	52	57	5

Other examinations made in the early morning whilst actual work was going on gave readings showing similar results to the above. In a general way it may be said that when no work is going on the average difference in percentage between the humidity of the inside air and outside air is about 10 ; when work is going on about 24—that is to say, the air of the underground Bakehouse contains 24 per cent. less moisture than the outside air.*

(c) **Bacteriological Examination.**—A simple comparative examination of the number of bacteria present in the air of four typical underground Bakehouses and one typical above-ground was also made. In each of these Bakehouses, whilst work was going on, three agar-plates were exposed for 30 minutes. One plate was placed on the floor, one on the table or trough

* It should not be forgotten that the differences of temperature and humidity between the Bakehouse air and the outside air affects the exchange of air between the two, and therefore the ventilation of the Bakehouse and the degree of CO₂.

where the bread was being made, and one on a shelf near the ceiling. After exposure for 30 minutes the plates were re-covered and incubated at blood heat (37° C.), for exactly 22 hours. All the plates then showed abundant growth.* Doubtless if the plates had been incubated for 48 hours or three or four days there would have been a vastly greater growth of colonies, and it is probable also that if some of the plates had been placed at room temperature certain bacteria would have grown which did not appear at blood heat in 22 hours. It is not suggested for one moment that these plates provide an adequate record of all the bacteria present in the air of these Bakehouses; to obtain such a record would have entailed an extensive investigation.† Our object was merely to obtain a *comparative* idea of the air of underground Bakehouses and above-ground Bakehouses in Finsbury. Accordingly, the whole of the 30 plates used in this examination were treated exactly the same in every way, the medium, exposure, and temperature and period of incubation were all precisely similar. The results, therefore, whilst of little value as a complete examination of the air, are useful and reliable *for comparison with each other*.

* It may be explained in untechnical terms that these agar-plates consisted of a shallow glass dish having an area of 9·6 inches, covered with a thin set film of agar jelly, properly prepared and sterilized. Bacteria falling upon this "sensitive" film find themselves on a favourable medium, and when placed also at a favourable temperature (blood heat), commence to grow, producing upon the hitherto clean surface of jelly "colonies" of their progeny. Each colony, therefore, though containing innumerable bacteria, has its origin in the microbe which fell upon that particular spot. If, therefore, the colonies be counted we shall have as a result, not the number of microbes on the plate after the 22 hours, but the number of microbes which fell upon the plate during its exposure for the half hour in the Bakehouse.

† I am aware, of course, that this gravity method of examination is open to criticism, and in some ways not so accurate in numerical estimation as the aspiration methods of Petri, Hesse, Frankland, Miquel, &c. But under all the circumstances it was considered the best in this particular case. For *comparative* purposes it is, of course, as useful as any other method.

Without entering into the question of the kind of bacteria found,* we may here insert the results respecting the number of bacteria falling upon these plates (9·6 inches in area) during the 30 minutes :—

	Underground Bakehouses.				Above Ground Bakehouse.
Average number of bacteria falling on each 9·6 inches (mean of three plates each)	B	C	D	E	Z
	800	680	600	600	200

The numbers on a second examination may be set out in relation to the position of the plates as follows :—

	Number of Bacteria on Plate on Shelf.	Number of Bacteria on Plate on Table or Trough.	Number of Bacteria on Plate on Floor.
Underground Bakehouse C...	490	720†	850
Above ground Shop of C ...	130	150	720
Above ground Bakehouse Z...	150	170†	300

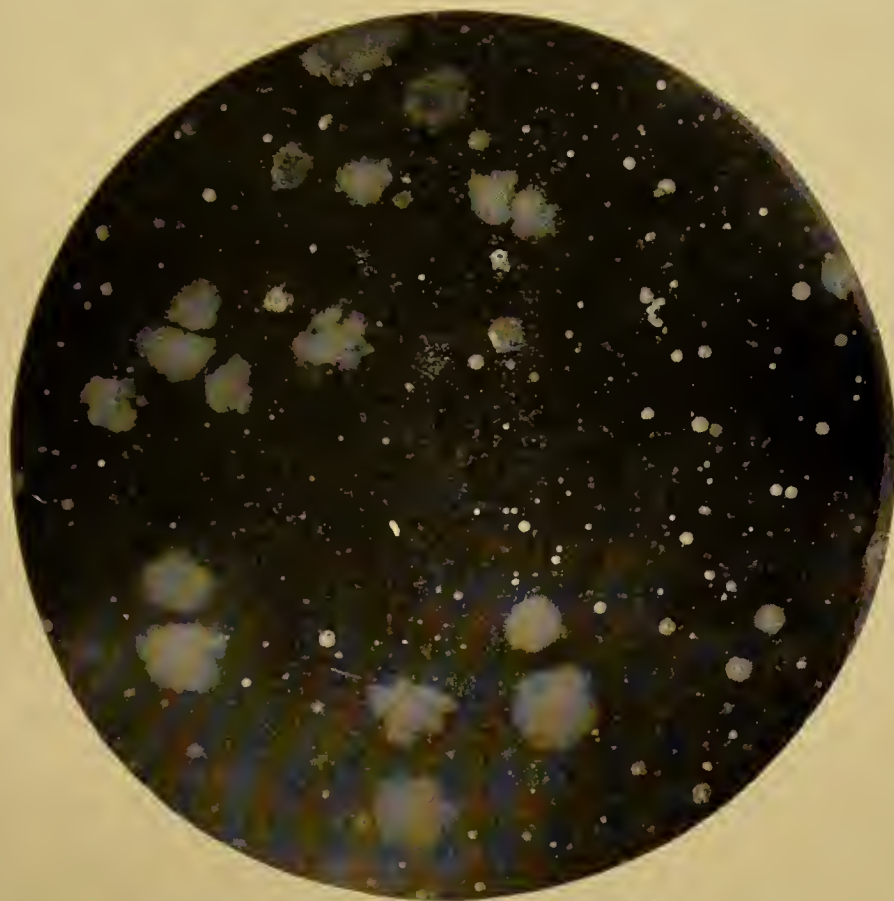
These figures, which have been most carefully checked, speak for themselves, and *in comparison with each other* are of interest. In order to complete the comparison, however, it seemed desirable

* Subcultures of the different colonies were made in various media and a number of micro-organisms isolated in pure culture, including a variety of bacteria commonly found in polluted atmospheres, yeasts, moulds, and several chromogenic bacilli. The plates on the shelves were found to yield a number of liquefying organisms. No disease-producing organisms were isolated.

† A number of the plates were photographed, and illustrations are appended of these two plates.

PLATE EXPOSED ON TABLE FOR HALF-AN-HOUR

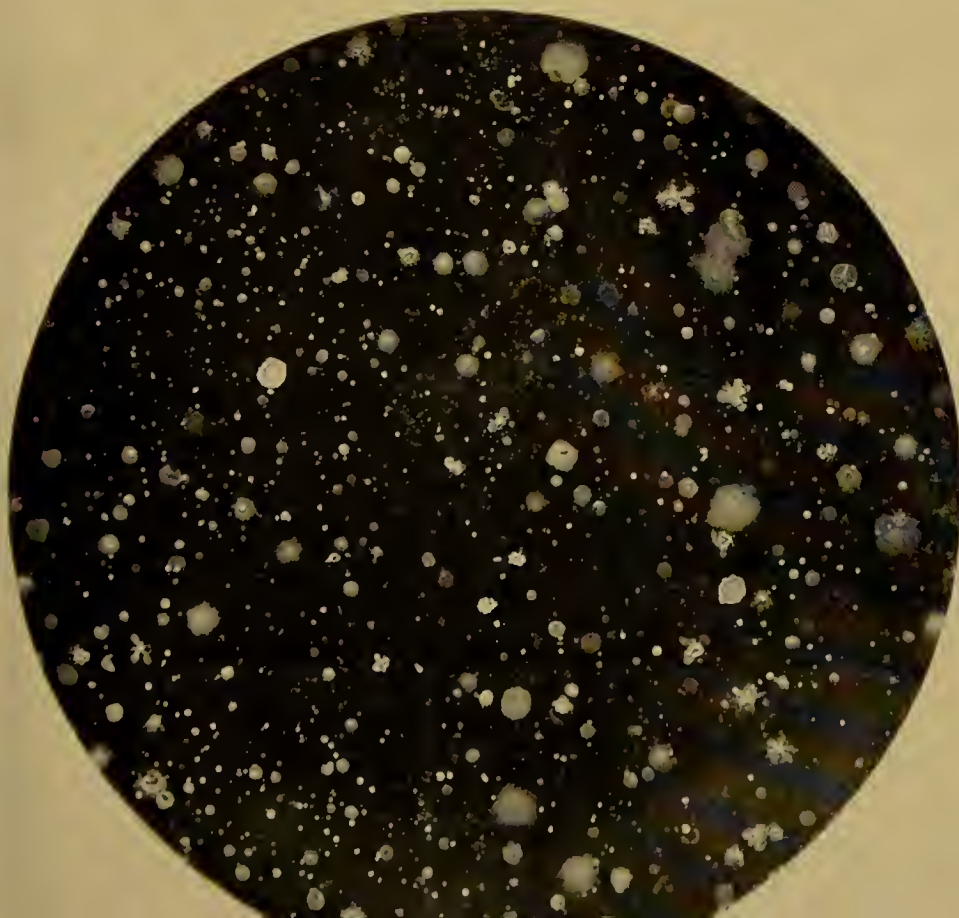
I.—Above-ground Bakehouse (Bakehouse Z).



170

Bacteria.

II.—Under-ground Bakehouse (Bakehouse C).



720

Bacteria.

to examine the outside air around one of these Bakehouses. For convenience Bakehouse C, which is situated in Whitecross Street, was selected, and agar plates were exposed for 30 minutes and treated in the same way as all the other plates. The results were as follows :—

	Over Grating in Pavement which acted as Ventilator to Underground Bakehouse C.	In Back Yard behind Bakehouse C.	In Open Street on Edge of Kerbstone opposite Bakehouse C.
Number of bac- teria on agar plates exposed for 30 minutes	820	200	160

From these figures it will be seen (*a*) that underground Bakehouse air contained at least four times more bacteria than street air around it ; (*b*) at least three times more bacteria than the air of the shop over it ; and (*c*) at least three times more bacteria than the above ground Bakehouse.

Summary.—The general result of these three investigations is that the air of the typical underground Bakehouses examined—

- (i) Contained 14·8 volumes per 10,000 of carbonic acid gas, CO_2 (as compared with 4·9 in above ground Bakehouses and 4·3 in the streets of Finsbury) ;
- (ii) That it contained between 10 and 24 per cent. less moisture than outside air surrounding the Bakehouses ; and
- (iii) That it contained at least four times more bacteria than surrounding street air, and three times more bacteria than the air of a typical above ground Bakehouse.

It is not possible to judge with accuracy what the effect of these conditions has been upon those who work under them. Bakers as

a class appear to suffer considerably from diseases of the liver and the lungs, and their mortality from rheumatic fever, diabetes and urinary diseases is above the standard for occupied males generally.* This statement must, however, be qualified by adding that it is based upon the causes of death of 88,243 bakers of all classes and not on bakers working in underground premises only, where as we have seen the evil conditions mostly exist. Moreover, the causes of mortality peculiar to bakers have decreased in recent years. In Finsbury, an examination of the records for the last 5 years shows that 54 per cent. of the deaths of persons working in Bakehouses were due to diseases of the lungs. There can be no doubt that persons working under the conditions at present existing in underground Bakehouses breathe continually an atmosphere polluted with the products of respiration and combustion in a very high degree, and this coupled with long hours and a dusty and sedentary employment doubtless exerts a detrimental influence upon their health. The effect would be in all probability very much more marked if there were not, at least, two counteracting conditions favourable to health. In the first place a baker's work does not expose him to many of the external conditions to which occupied males generally are exposed, such for instance as dampness and climatic conditions, chemical poisoning, muscular strain, machinery accidents, etc. In the second place, some of the evils produced by the polluted atmosphere and resulting tendency to lung disease, are counteracted by the low relative humidity which might be distinctly favourable to certain lung conditions.

* Supplement to the 55th Annual Report of the Registrar General, Part II., 1897, p. li. See also *Dangerous Trades*, by Thomas Oliver, M.D., 1902, p. 505.

SCHEDULE USED IN THE INSPECTION OF BAKEHOUSES AND RESTAURANTS.

No.	
Address	Rental
Name of Occupier and period of occupancy	
Name and Address of Owner	
Names and Addresses of Employees	
Day or Night Work ?	Hours

General Conditions :

Size and Situation of Bakehouse

Construction (walls, ceiling, floor, windows, sky-light, staircase, entrances)

Lime Washing or Varnishing ?

Apparatus :

Troughs (No., fixed or moveable, construction)

Oven ; Machinery

Arrangements for Flour, Potatoes, &c.

Physical Conditions :

Temperature	Humidity	CO ₂
Ventilation and Light (Fans, Tobins, &c.)		
Cleanliness		

Sanitary Conveniences :

Drain Inlets

W.C. (situation, communication, condition)

Ash-pit (situation and construction)

Coal

Water Supply :

From the Main ?	From a Cistern ?
If Cistern (position, construction, cover, cleanliness, connection with w.c. water supply)	

REMARKS.

As to Management, Cleanliness, Trade, Ill-health of Employees, use of Premises for Sleeping Purposes, &c.

Date

Form of Application.

METROPOLITAN BOROUGH OF FINSBURY.

FACTORY AND WORKSHOP ACT, 1901.

Application for Certificate in respect of Underground Bakehouse.

TO THE TOWN CLERK,

FINSBURY TOWN HALL, ROSEBERY AVENUE, E.C.

SIR,

As I am desirous of continuing the use of the Bakehouse situate at No. _____ Street, after the 1st day of January, 1904, I hereby make application for the certificate of the Council under the 101st section of the above mentioned Act that the Bakehouse is suitable for the purpose.

Here give full particulars of ownership or tenancy generally.

My interest in the premises is as follows :—

I am,

Your obedient servant,

190 .

Form of Certificate.

METROPOLITAN BOROUGH OF FINSBURY.

FACTORY AND WORKSHOP ACT, 1901. 1 EDW. 7, CAP. 22, SEC. 101.

Certificate as to the suitability of Underground Bakehouses.

THE TOWN HALL,

ROSEBERY AVENUE, E.C.

190 .

The Council of the above mentioned Borough having enquired as to and being satisfied of the suitability of the Underground Bakehouse, situate at No. _____ Street, as regards construction, light, ventilation. and in all other respects, do hereby certify that the said Underground Bakehouse, situate as aforesaid, is in their judgment suitable for the purpose of a Bakehouse.

Town Clerk.

For the Council of the Metropolitan Borough of Finsbury.

